QUASI ORTHOGONAL HYBRID WALSH-PN CODES FOR CDMA APPLICATION IN HF MODEMS

ABSTRACT OF THE DISCLOSURE

HF modems operate at the HF licensed frequency bands ranging from 3 to 25 MHz. This invention deals with a Quasi CDMA application of a low bit rate modem operating at a rate of 125 bps. This low rate modem has been operational for some time now, and is based on the MIL-STD 188-110A waveforms.

The modulator of the low bit rate modem processes the information data at the mobile transmitter before it sends the HF angle modulated carrier to one of the remote base station (RBS) sites, where the information is processed and demodulated and forwarded to the Network Operation Center (NOC).

The modulated waveform generated by the HF transmitter consists of a preamble, data spreading by Walsh functions, Walsh scrambling by a Pseudo-Noise (PN) sequence, channel symbol formation, and the Direct Digital synthesizer implementing an 8 Phase Shift Keying (8PSK) to 8- Ary Continuous Phase Frequency Shift Keying (CPFSK) signaling converter. The HF modem transmits a 4 second HF burst at the allowed HF frequency. This burst is made up of four 32 channel symbol frames for the preamble and 5 repeated constant duration HF blocks.